

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method for use in allocating subcarriers in an OFDMA system comprising
allocating at least one diversity cluster of subcarriers to a first subscriber; and
allocating at least one coherence cluster to a second subscriber, such that
communication with the first and second subscribers is able to occur by simultaneously using
the at least one diversity cluster and the at least one coherence cluster, respectively.
2. (Original) The method defined in Claim 1 wherein the first subscriber
comprises a mobile subscriber and the second subscriber comprises a fixed subscriber.
3. (Original) The method defined in Claim 1 wherein the first subscriber
comprises a fixed subscriber located at a cell edge.
4. (Original) The method defined in Claim 1 further comprising transmitting
information using one diversity cluster while performing frequency hopping.
5. (Original) The method defined in Claim 1 wherein using one diversity cluster
includes channel coding across subcarriers of the one diversity cluster.
6. (Original) The method defined in Claim 1 further comprising transmitting
codewords in which each codeword contains bits transmitted from multiple subcarriers and
with difference bits between codewords being distributed among multiple subcarriers.
7. (Original) The method defined in Claim 1 wherein subcarriers of one
coherence cluster are within the coherent bandwidth of a channel between a base station and
a subscriber.

8. (Original) The method defined in Claim 1 further comprising updating allocation of clusters to the subscriber.

9. (Original) The method defined in Claim 1 further comprising reconfiguring cluster classification when population of mobile and fixed subscribers in a cell changes.

10. (Original) The method defined in Claim 1 wherein the at least one diversity cluster is configured to reduce the effect of inter-cell interference.

11. (Original) A method for use in allocating subcarriers in an OFDMA system comprising

determining whether a subscriber is mobile or fixed;

allocating at least one diversity cluster of subcarriers to the subscriber if the subscriber is determined to be mobile; and

allocating at least one coherence cluster of subcarriers to the subscriber if the subscriber is determined to be fixed.

12. (Original) The method defined in Claim 11 wherein determining whether a subscriber is mobile or fixed comprises detecting a rate of change of pilot signals and indicating a subscriber is mobile when the rate of change is greater than a predetermined amount.

13. (Original) The method defined in Claim 11 wherein determining whether a subscriber is mobile or fixed comprises measuring channel variation periodically.

14. (Original) The method defined in Claim 11 wherein determining whether a subscriber is mobile or fixed comprises measuring channel variation periodically for each cluster.

15. (Original) The method defined in Claim 11 wherein determining whether a subscriber is mobile or fixed comprises measuring SINR values periodically for each cluster.

16. (Original) The method defined in Claim 11 wherein determining whether a subscriber is mobile or fixed comprises measuring a power difference between pilot symbols for each cluster and averaging the difference over a window of time slots.

17. (Original) The method defined in Claim 16 wherein the window of time slots comprises a moving window of time slots.

18. (Original) The method defined in Claim 17 wherein the window of time slots comprises four time slots.

19. (Original) The method defined in Claim 11 further comprising transmitting information using one diversity cluster while performing frequency hopping.

20. (Original) The method defined in Claim 11 wherein using one diversity cluster includes channel coding across subcarriers of the one diversity cluster.

21. (Original) The method defined in Claim 11 further comprising transmitting codewords in which each codeword contains bits transmitted from multiple subcarriers and with difference bits between codewords being distributed among multiple subcarriers.

22. (Original) The method defined in Claim 11 wherein subcarriers of one coherence cluster are within the coherent bandwidth of a channel between a base station and a subscriber.

23. (Original) The method defined in Claim 11 further comprising updating allocation of clusters to the subscriber.

24. (Original) The method defined in Claim 11 further comprising reconfiguring cluster classification when population of mobile and fixed subscribers in a cell changes.

25. (Original) The method defined in Claim 11 wherein the at least one diversity cluster is configured to reduce an effect of inter-cell interference.

26.-33. (Canceled)

34. (Original) An apparatus for use in allocating subcarriers in an OFDMA system, the apparatus comprising
means for determining whether a subscriber is mobile or fixed;
means for allocating at least one diversity cluster of subcarriers to the subscriber if the subscriber is determined to be mobile; and
means for allocating at least one coherence cluster of subcarriers to the subscriber if the subscriber is determined to be fixed.

35. (Original) The apparatus defined in Claim 34 wherein the means for determining whether a subscriber is mobile or fixed comprises means for detecting a rate of change of pilot signals and indicating a subscriber is mobile when the rate of change is greater than a predetermined amount.

36. (Original) The apparatus defined in Claim 34 wherein the means for determining whether a subscriber is mobile or fixed comprises means for measuring channel variation periodically for each cluster.

37. (Original) The apparatus defined in Claim 34 wherein the means for determining whether a subscriber is mobile or fixed comprises means for measuring SINR values periodically for each cluster.

38. (Original) The apparatus defined in Claim 34 wherein the means for determining whether a subscriber is mobile or fixed comprises means for measuring a power difference between pilot symbols for each cluster and averaging the difference over a window of time slots.

39. (Original) The apparatus defined in Claim 38 wherein the window of time slots comprises a moving window of time slots.

40. (Original) The apparatus defined in Claim 39 wherein the window of time slots comprises four time slots.

41. (Original) The apparatus defined in Claim 34 further comprising means for transmitting information using one diversity cluster while performing frequency hopping.

42. (Original) The apparatus defined in Claim 11 wherein using one diversity cluster includes channel coding across subcarriers of the one diversity cluster.

43. (Original) The apparatus defined in Claim 11 further comprising means for transmitting codewords in which each codeword contains bits transmitted from multiple subcarriers and with difference bits between codewords being distributed among multiple subcarriers.

44. (Original) The apparatus defined in Claim 34 wherein subcarriers of one coherence cluster are within the coherent bandwidth of a channel between a base station and a subscriber.

45. (Original) The apparatus defined in Claim 11 further comprising means for updating allocation of clusters to the subscriber.

46. (Original) The apparatus defined in Claim 34 further comprising means for reconfiguring cluster classification when population of mobile and fixed subscribers in a cell changes.

47. (Original) The apparatus defined in Claim 34 wherein the at least one diversity cluster is configured to reduce an effect of inter-cell interference.

48. (Previously Presented) The method defined in Claim 1 further comprising determining characteristics of the first subscriber and the second subscriber, wherein allocating the at least one diversity cluster of subcarriers to the first subscriber and allocating the at least one coherence cluster to the second subscriber are based on determined characteristics of the first and second subscribers.

49. (Previously Presented) The method defined in Claim 48 wherein the characteristics comprise whether the first and second subscribers are fixed or mobile subscribers.

50. (Previously Presented) The method defined in Claim 1 further comprising adaptively switching allocation of clusters to either the first or second subscriber so that the first subscriber is allocated at least one coherence cluster of subcarriers or the second subscriber is allocated at least one diversity cluster of subscribers based on channel conditions and subscriber characteristics.